

PRIMARY USE: Used for runoff control to divert the first flush from stormwater runoff to the appropriate BMP treatment method for a particular site.

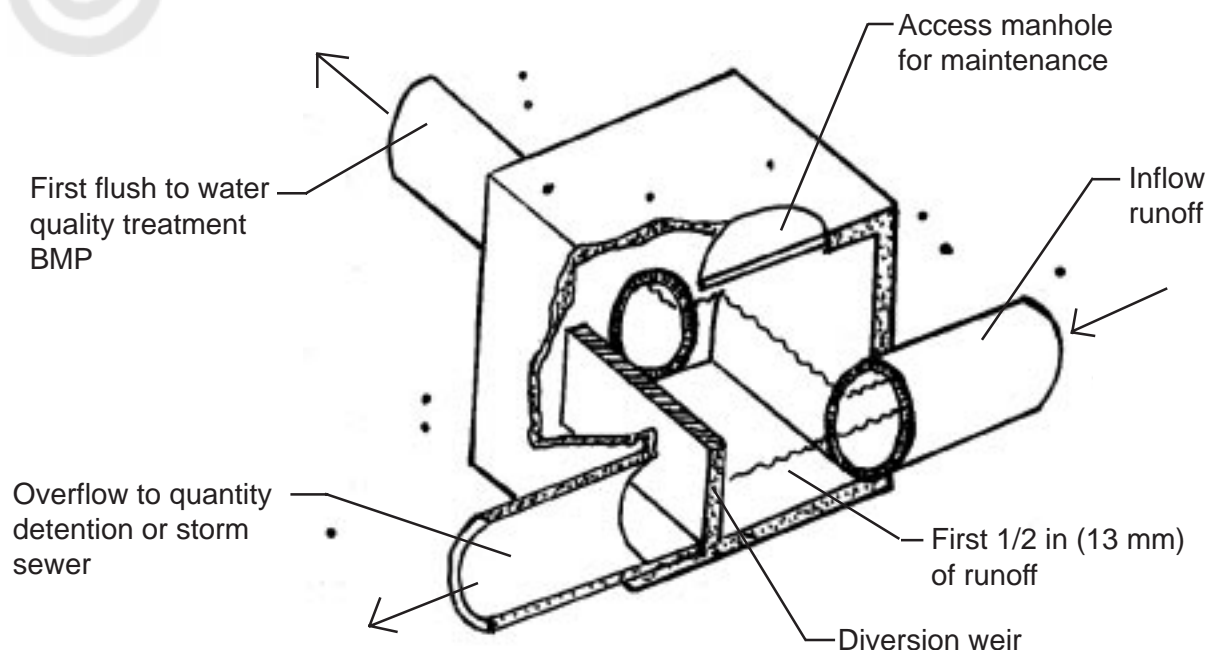
ADDITIONAL USES: Flood control and protection of flows concentrated with contaminants for sensitive areas. Also, monitoring first flush stormwater runoff flow rates.

ISOLATION/DIVERSION STRUCTURE

What is it? A device to divert the first flush containing the more polluted stormwater for water quality treatment BMPs.

Purpose

To divert excess water from one area for use or safe disposal in other areas.



**Typical Isolation / Diversion Structure
Perspective View**

Limitations

Each diversion must have a safe and stable outlet with adequate capacity.

Materials

Prefabricated isolation / diversion structure or system fabricated on site from such materials as Portland cement. Plumbing for connecting the isolation / diversion structure to the associated system.

Installation

Diversions designed to protect areas such as urban areas, buildings, and roads, shall have enough capacity to carry the peak runoff expected from a storm frequency consistent with the hazard involved but not less than a 25-year-frequency, 24-hour-duration storm.

Source: Warren Bell, *A Catalog of Stormwater Quality Best Management Practices for Heavily Urbanized Watersheds*. National Conference on Urban Runoff Management: Enhancing Urban Watershed Management at the Local, County, and State Levels, March 30 to April 2, 1993.

ISOLATION/DIVERSION STRUCTURE

Additional Considerations:

How it works:

Off-line practices are designed to divert the more polluted stormwater first flush for water quality treatment, isolating it from the remaining stormwater that is managed for flood control. The diverted first flush is not discharged to surface waters but is stored until it is gradually removed by infiltration, evaporation, and evapotranspiration. Vegetation, such as grass in the bottom and sides of infiltration areas, helps to trap stormwater pollutants and reduce the potential for transfer of these pollutants to ground waters. Off-line retention practices are the most effective for water quality enhancement of stormwater. Because an off-line retention area primarily provides for stormwater treatment, it must be combined with other BMPs for flood protection to form a comprehensive stormwater management system.

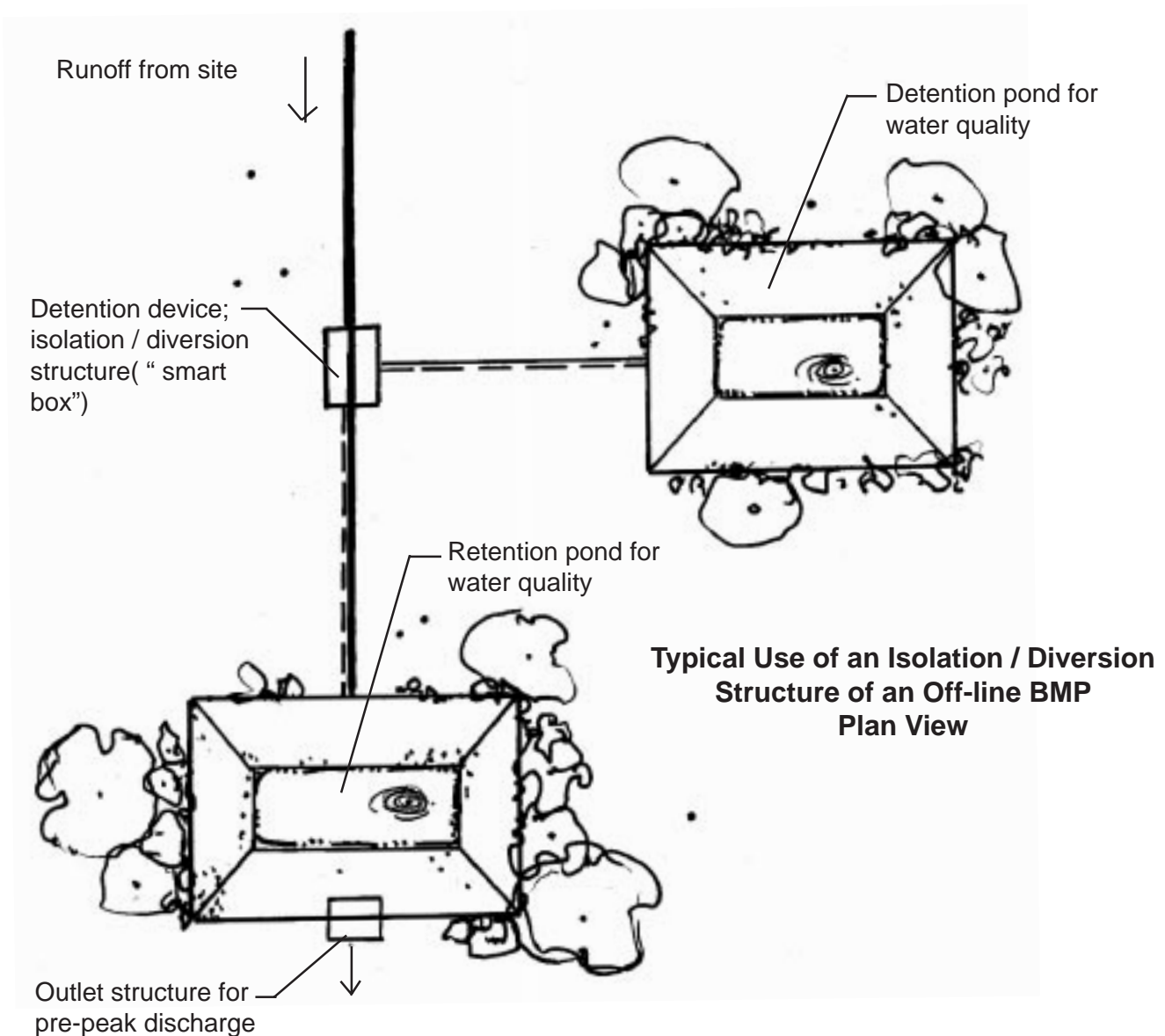
A typical approach for achieving isolation of the water quality volume (WQV) is construct an isolation/diversion weir in the stormwater channel or pipe such that the height of the weir equals the height of the water in the BMP when the entire WQV is being held. When additional runoff greater than the WQV enters the stormwater channel or pipe, it will spill over the isolation/diversion weir, and the extent of mixing with water stored in the BMP will be minimal. The overflow runoff then enters a peak flow rate reducer or exits directly into the stormwater collection system.

A typical isolation / diversion structure used in an off-line system may be seen in the following figure. The system is commonly referred to as a “dual pond system,” in which a smart weir directs the first flush stormwater into the infiltration area until it is filled, with the remaining runoff routed to the detention facility for flood control.

Source: Warren Bell, *A Catalog of Stormwater Quality Best Management Practices for Heavily Urbanized Watersheds*. National Conference on Urban Runoff Management: Enhancing Urban Watershed Management at the Local, County, and State Levels, March 30 to April 2, 1993.

ISOLATION/DIVERSION STRUCTURE

Additional Drawings:



Source: Warren Bell, *A Catalog of Stormwater Quality Best Management Practices for Heavily Urbanized Watersheds*. In: National Conference on Urban Runoff Management: Enhancing Urban Watershed Management at the Local, County, and State Levels, March 30 to April 2, 1993.